REMARKS

In the final action of Jan 24, 2007, the examiner withdrew the rejections of claims 1 and 3-4 under 35 U.S.C. 102(b), as being anticipated by Sainsbury et al. (6,104,162). In that same action the examiner withdrew the rejections of claims 3 and 26-30 under 35 U.S.C. 112, second paragraph, as being indefinite. The examiner also withdrew the objection to claim 29.

The examiner rejected Claims 1-4 under 35 U.S.C. 102(e) as being anticipated by Bourilkov et al. (US 2004/0253500).

Also in that final action, the examiner indicated that Claims 26-35 were allowed over the prior art references of record and proper under 35 U.S.C. 112, 2nd paragraph. In response, applicant canceled claims 1-4, reserving its right to file a continuation application on the canceled subject matter. In view of cancellation of claims 1-4 the Applicant considered the application in condition for allowance.

Applicant filed a Request for Continued Examination citing new art that had come to the Applicant's attention. In response, the examiner issued the current office action in which the examiner stated:

> **Applicant's election with traverse of Group I, claims 1 -4 and 5-9 in the reply filed on 17 April 2006 is acknowledged. The traversal is on the grounds that the Examiner has not shown that the subcombination has a separate utility. The comhination as claimed does not require the particulars of the Suhcomhination as claimed hecause the subcomhination requires a memher including appropriate mating fitting that is not required in the comhination. The combination requires only the interface in comhination with, for example, a converter. The suhcomhination (i.e. the adapter) has separate utility such as a battery charger in the ahsence ofan interface, a fuel cell or a converter. The requirement is still deemed proper and is therefore made Final. Therefore, claims 5-9 are withdrawn from consideration. The cancellation of claims 10-25 in the Amendment filed 31 July 2006 is acknowledged.**

Applicant in view of the amendments that had been made to claims 1-4 previously had overcome the restriction of those claims, as evidenced by the examiner's examination of those claims. Applicant has restored herein claims 1-4, as they appeared prior to the final action of Jan 24, 2007, (except that claim 36 now includes the feature of "common planar surface,") as new claims 36-39.

Applicant contends that claims 36-39 are allowable over any purported combination of Bean et al. (6,955,863) in view of Droppo et al. (6,628,011) for reasons that will be discussed below.

Claim Objections

The examiner objected to Claims 26 and 31 because of the informalities:

> **Claim 26, lines 1 and 2, suggest changing "comprises" to —comprising—.**
> **Claim 31, line 1, suggest changing "comprises" to -comprising-.**

Applicant has amended those claims.

35 U.S.C § 112

The examiner rejected claim 31-35 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The examiner stated:

> **Claim 31 recites the limitation "the interface" in line 8. There is insufficient antecedent basis for this limitation in the claim. (Claims 32-35 are rejected because they are dependent upon claim 31.**

Applicant has corrected claim 31.

35 U.S.C § 103

The examiner rejected claims 26-28 and 30 under 35 U.S.C. 103(a) as being unpatentable over Bean et al. (6,955,863) in view of Droppo et al. (6,628,011). The examiner argues that:

> **Claim 26: Bean et al. in Figures 2, 3A and 11 disclose a hybrid power supply comprises:**
> **an adapter comprising: a member including appropriate mating fittings (110, 112) to allow the member to connect to a battery (102) or a source of fuel (104) for a fuel cell system for powering an electronic device (101, 240) and; a switching type DC/DC boost type converter (230) coupled to the member (100, 202) and which receives energy from a fuel cell (104, 220) or from an external battery connected to the member (col. 3: 33-47, col. 4: 13-35, col. 10: 3-10, and 64-67).**

Bean et al. do not disclose a switching type DC/DC boost type converter that is arranged to deliver the energy to a rechargeable cell, the DC/DC converter configured to provide substantially constant current drain from the fuel cell.

Droppo et al. in Figures 2-4 disclose a switching type DC/DC boost type converter (14) that is arranged to deliver the energy to a rechargeable cell (25), the DC/DC converter configured to provide substantially constant current drain from the fuel cell (col. 2: 28-col. 4: 35). The configuration of the converter is similar to that instantly disclosed, and, therefore, would obviously provide substantially constant current drain from the fuel cell.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified apparatus of Bean et al. by substituting the booster with the booster and rechargeable battery of Droppo et al. because Droppo et al. teach a booster in combination with a rechargeable battery that would have provided a power management system that manages power flow to and from multiple, isolated DC power sources and energy storage devices while delivering high quality alternating power to a load thereby improving the overall energy conversion of the apparatus.

Claim 26, directed to a hybrid power supply and is neither described nor suggested by any purported combination of Bean et al. and Droppo.

Claim 26 calls for an adapter ... a member including appropriate mating fittings on a common surface to allow the member to connect to a battery or a source of fuel for a fuel cell system for powering an electronic device and a switching type DC/DC boost type converter coupled to the member and which receives energy from a fuel cell or from an external battery connected to the member... , the DC/DC converter configured to provide substantially constant current drain from the fuel cell.

The examiner argued that Bean teaches: **"Bean et al. in Figures 2, 3A and 11 disclose a hybrid power supply comprises: an adapter comprising: a member including appropriate mating fittings (110, 112) to allow the member to connect to a battery (102) or a source of fuel (104) for a fuel cell system for powering an electronic device (101, 240) and; a switching type DC/DC boost type converter (230) coupled to the member (100, 202) and which receives energy from a fuel cell (104, 220) or from an external battery connected to the member (col. 3: 33-47, col. 4: 13-35, col. 10: 3-10, and 64-67)."**

Applicant contends that neither these disclosures in Bean nor elsewhere in Bean does the reference either describe or suggest the features of claim 1. Specifically, Bean neither describes nor suggests: "... a member including appropriate mating fittings on a common planar surface to allow the member to connect to a battery or a source of fuel for a fuel cell system for powering an electronic device.

Rather, Bean teaches the arrangement shown in FIG. 11, which figure is reproduced below:

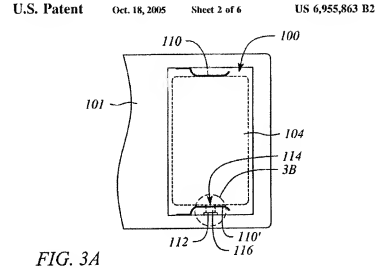

FIG. 3A

In this arrangement, while the compartment interchangeably holds either a battery or a fuel cartridge, it does not suggest the features of claim 1, which calls for a "member having a pair of mating fittings on a common planar surface to couple either a fuel cartridge ... or ... a battery to ... the device." Because Bean has only contemplated conventional cells in which anode and cathode are on opposite ends of the battery, Bean has the dilemma that the battery contact must be modified from what is conventional to accommodate an aperture for the fuel cartridge. Bean, however, cannot accommodate the battery on the common planar surface, as the fuel cartridge. Rather, only one of the fittings for the battery is accommodated on the common planar surface.

In Bean, one of the terminals 110 contacts the anode of a battery and an opposing terminal 110, e.g., in a different, albeit parallel plane, contacts the cathode of the battery, as is depicted in Figures 2 and 3A. The two contacts shown in Figure 1 contact two different batteries 102, as depicted in Figure 1, not a battery or a fuel cell, as claimed in claim 1.

Accordingly, claim 1 is neither anticipated nor rendered obvious by Bean et al and Droppo, since Droppo which is used to teach "**switching type DC/DC boost type converter**" does not cure the deficiencies in the teachings of Bean.

Claim 27 further limits claim 26 and includes the feature of: "... a circuit disposed to sense when a voltage is present across terminals of the member to cause power to be supplied to rechargeable battery from an external battery when the external battery is present or from a fuel cell when the battery is not present." The examiner argues that:

> **Claim 27: The rejection is as set forth above in claim 26 wherein further Droppo et al. disclose a circuit (12) disposed to sense when a voltage is present across terminals of the member interface to cause power to be supplied to rechargeable battery from an external battery when the external battery is present or from a fuel cell when the battery is not present (col. 2: 55-65).**

Claim 27 is allowable over the combination of Bean with Droppo because no combination of these references suggests a circuit disposed to sense when a voltage is present across terminals of the member to cause power to be supplied to rechargeable battery from an external battery when the external battery is present or from a fuel cell when the battery is not present. Droppo discloses:

> **The Controller Module (or System Controller) 12 manages both the Inverter Module 16 and the Converter Module 14 to provide an integrated control system. The primary functions of the Controller Module 12 are to control the current drawn out of the fuel cell and to operate the Inverter Module 16. The Controller 12 (in combination with the DC to DC Converter 14) controls the voltage of the variable voltage DC bus. The Control Module 12 thereby provides coordinated control of the Power Management System 10. All of the modules, or subsystems, of the Power Management System 10 can be physically integrated together into a single hardware package.**

Droppo does not suggest the feature of the circuit as claimed in claim 27.

Similarly, claim 28 recites that "the circuit includes a diode coupled between an output terminal of the fuel cell and a terminal of the member that connects an external battery to the hybrid supply." Droppo does not show such a diode. The examiner argues that:

> **Claim 28; The rejection is as set forth above in claim 26 wherein further Droppo et al. in Figure 4 disclose that the circuit includes a diode (Da) coupled**

between an output terminal of the fuel cell and a terminal of the member that connects an external battery to the hybrid supply (col. 4: 1-35).

Diode Da is part of the buck converter in Droppo and is not connected between an output terminal of the fuel cell and a terminal of the member that connects an external battery to the hybrid supply.

The examiner also rejected claim 30 arguing that **"...Droppo el al. disclose a circuit including a fuel cell current control (22) that senses fuel cell current and controls in part operation of the converter to provide constant current discharge on the fuel cell side of the hybrid power supply (col. 2: 66-col. 3: 8)."** The feature of a circuit to provide constant current discharge on the fuel cell side of the hybrid power supply is not disclosed in the passage relied on nor elsewhere in Droppo.

The examiner rejected claim 29 under 35 U.S.C. 103(a) as being unpatentable over Bean et al. in view of Droppo et al. as applied to claim 26 above, and further in view of Payne (US 5,309,082).

Claim 29 recites the features of "... a first transistor biased through a resistor to conduct power from the fuel cell to a load and a second transistor arranged where if an external battery is inserted, the gate voltage of the first transistor turns the transistor off, preventing connection of the fuel cell to the battery, and the second transistor is biased through a second resistor to conduct power from the battery to the load." No combination of Bean et al. Droppo et al. and Payne disclose this feature.

The examiner argues, in part, that:

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However, Payne in Figure 2 discloses a circuit a circuit including: a first transistor biased through a resistor to conduct power from the fuel cell to a load; a second transistor arranged where if an external battery is inserted, the gate voltage of the first transistor turns the transistor off, preventing connection of the fuel cell to the battery, and the second transistor is biased through a second resistor to conduct power from the battery to the load. Payne also disclose that a variety of other circuit (i.e. linear and switching) topologies can alternatively be employed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the Invention was made to have modified the circuit of the Bean et al. combination by incorporating the circuit of Payne et al. because Payne teaches a dc/dc converter that it would have provided simple over-current protection thereby improving the overall performance of the power supply.

Payne neither describes nor suggests the feature of claim 29. Rather in Figure 2, Payne shows two transistors provided as a linear regulator 20. Neither of the transistors in Figure 2 however conduct power from the fuel cell to a load or are arranged where if an external battery is inserted ... the first transistor turns the transistor off preventing connection of the fuel cell to the battery and the second transistor is biased ... to conduct power from the battery to the load.

The examiner rejected claims 31-33 and 35 under 35 U.S.C. 103(a) as being unpatentable over Bean et al. (6,955,863) in view of Droppo et al. (6,628,011), and further in view of Payne (5,309,082).

Claim 31, which includes the features of "... a fuel cell, an adapter between the fuel cell and a fuel cartridge or external battery, the adapter comprises, a member including appropriate mating fittings on a common planar surface to allow the member to connect to a battery or a source of fuel for a fuel cell system for powering an electronic device and a switching type DC/DC boost type converter ..." is allowable at least for the reasons discussed for claim 26. In addition claim 31 includes the feature of "a fuel cell current sensor/comparator, included in a feedback control loop disposed about the DC/DC converter, which controls in part operation of the converter to provide constant current discharge on the fuel battery side of the hybrid power supply.", which serves to further distinguish claim 31 for reasons generally discussed in claim 28.

Claims 32 and 33 are allowable at least for the reasons given in claim 31.

With respect to 35, which recites that "...the circuit delivers an output voltage that corresponds to about 90% charge of the rechargeable cell.", the examiner argues:

> **Claim 35: Because the hybrid power supply of the Bean et al. combination is structurally similar to that instantly disclosed, the circuit would obviously deliver an output voltage that corresponds to about 90% charge of the rechargeable cell.**

None of the references suggest the desirability of a supply that provides an output voltage that corresponds to about 90% charge of the rechargeable cell. Therefore, there is no basis to

contend that "**combination is structurally similar to that instantly disclosed, the circuit would obviously deliver an output voltage that corresponds to about 90% charge of the rechargeable cell.**"

The examiner rejected claim 34 under 35 U.S.C. 103(a) over Bean et al. in view of Droppo et al., and further in view of Payne as applied to claim 31 above, and further in view of Amatucci (6,517,972).

Claim 34 recites that the rechargeable cell is Li-Ion or Li-Polymer rechargeable cell.

Because Amatucci does not cure the deficiencies in Bean et al., Droppo et al., and Payne as applied and argued above, this claim is also allowable at least for the reasons discussed in claim 31.

Applicant contends that claims 36-39 are allowable over any purported combination of Bean et al. (6,955,863) in view of Droppo et al. (6,628,011) at least because no combination of these references suggests a member including appropriate mating fittings on a common planar surface to allow the member to connect to a battery or a source of fuel for a fuel cell system for powering an electronic device.

In the Office Action of September 26, 2006 the examiner rejected Claims 1-4 under 35 U.S.C. 102(e) as being anticipated by Bourilkov el al. (US 2004/0253500). The examiner stated:

> **Claim 1: Bourilkov et al. in Figure 2 disclose an adapter comprises: a member (20) including appropriate mating fittings (32, 34) to allow the member to connect to a battery or a source of fuel for a fuel cell system for powering an electronic device. See paragraphs [0021]-[0022].**

Applicant contends that claims 1-4 are patentable over Bourilkov et al. The examiner relies principally on paragraphs [0021] and [0022]. These are reproduced below:

> **[0020] The interconnect 20 can distinguish between a fuel cartridge and a battery. The interconnect 20 provides a convenient technique to allow a fuel cell-powered device to operate in situations where a fuel cartridge is temporarily unavailable. This is accomplished by the interconnect 20 between a fuel cell power source and a fuel cartridge. The interconnect 20 allows the power source to automatically detect the insertion of a primary or charged secondary battery or batteries into the fuel cartridge cavity. The interconnect 20 allows the primary or secondary battery or batteries to operate the device and allow consumer use of their device in the temporary absence of a fuel cartridge. Device 12 can be any type of portable device such as a mobile phone, portable computer or audio/video**

device. In general, device 12 would include an operable portion (not shown), i.e., the part of the device that provides the device's function, a fuel cell (not shown) to provide portable power to the device and the interconnect 20 all housed within the housing 11.

[0021] Referring to FIG. 2, interconnect 20 provides an interface between a fuel cell 22 and a fuel cartridge or battery (not shown). The interface 20 has appropriate mating fittings 32 to allow a fuel cartridge (not shown) to connect to the interface 20 and deliver fuel to the fuel cell 22 disposed in the device 12. The mating fitting 32 provides an ingress fuel interface port. The interface port 32 can be a simple valve or merely an ingress port or other configuration enabling passage of a liquid or gas fuel and allow secure, leak-proof mating with a complementary port on a fuel cartridge. The mating fitting 32 allows liquid or gas fuel to flow into the fuel cell 22, via an egress port 33 to enable operation of the fuel cell. The interface 20 also includes a pair of spring-loaded battery terminal contacts 34a, 34b disposed on a common surface of the interconnect 20 to allow for contact with battery terminals in a prismatic battery system. The fuel cell 22 receives fuel from the fuel cartridge that is connected to the interconnect 20. The fuel cell converts the fuel into electrical energy that is used to power electronic circuits 24 that provide the operational functionality for the device 12. The electronic circuits 24 can also be powered by a battery (not shown) that is connected to the interconnect 20.

Nowhere in Bourilkov el al. (US 2004/0253500) does Bourilkov el al. disclose the claimed adapter. Rather, Bourilkov el al. discloses an interconnect 20 housed in the compartment 14. Accordingly, claims 1-4 are not anticipated by Bourilkov el al.

Please charge the Petition for Extension of Time fee of **$120** and apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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